Survey taker number: 1713	12 H
Hi, my name is I am a student am working on this project as a part of my studies. The boating activities in the Delta and to measure any change during construction of the proposed Twin Tunnel Project WaterFix project. Your responses will only be reported with me to complete our survey? First, I would like to get some general information about	ges in recreation and visitation that might occur ect, sometimes called the BDCP or California d in aggregate. Can you take about fifteen minutes
1. Do you own a boat or do you rent a houseboat or o Own: Yes No Rent: Yes No If No to both rent and own then end survey.	ther type of boat to go boating?
2. Which best describes your boat or boats (select all	that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: Jet W. 3. Approximately how many times per year do you v. A. I do not go boating in the Delta.	isit the Delta for recreational boating?
B. 1–5 C. 6–10 D. 11–15 E. 15–20	
F. More than 20	
If Answer to 3 is A, then end survey.	
4. What recreational boating activities do you usually	y undertake (select all that apply)?
A. Fishing B. Wake boarding	
C. Water Skiing	
D Cruising E. Visiting waterside bars and restaurants F. Hunting G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
1(No. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
1	
	Name of Marinas: 1) Ro Vbtq
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5 mph speed zones before reaching fast water	Х		
Nearby waterside bars and restaurants	X		
Turbid/muddy water	ν		
Heavy barge/boat traffic	Ĭ X		
Excellent birdwatching			
Loud noise (traffic, construction, etc.)	X		
High winds	<u> </u>		

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes	Ne
(103)	

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - (C) I would occasionally avoid the Delta by switching to boat at locations other than the Delta. D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?

A. I have no reaction one way for the other.

- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

D.)

I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area. E.
- I am sure that I would not visit the Clarksburg area at all during the construction project. F.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- I would be somewhat less likely to visit the Clarksburg Marina.
 - E. I would be much less likely to visit the Clarksburg Marina.
 - F. I am sure I would not visit the Clarksburg Marina during the construction project.
 - The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
 - B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
 - E. I would be much less likely to visit the Hood Supply Company.
 - F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1-5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - D. It is very unlikely that I will use the area.
 - E. I am sure that I will not use the area once tunnel construction begins.

not applicable

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: \\2 \ \\3	12-5
boating activities in the Delta and to measure any	student at the University of California at Santa Cruz. Its. The purpose of this survey is to analyze recreational changes in recreation and visitation that might occur Project, sometimes called the BDCP or California ported in aggregate. Can you take about fifteen minutes in about your recreational boating activities.
1. Do you own a boat or do you rent a houseboa Own: Yes No Rent: Yes No If No to both rent and own then end survey.	t or other type of boat to go boating?
2. Which best describes your boat or boats (sele	ect all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:	
If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you A. Fishing B. Wake boarding C. Water Skiing D. Cruising 	usually undertake (select all that apply)?
E Visiting waterside bars and restaurants F. Hunting G. Other	
G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	 A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
K	A Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
,.	II answer to o is 11 os 25, where
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9	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
1	O. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies Yes, other items E. No
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	Name of Marinas: 1) Ro WHG
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	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5 mph speed zones before reaching fast water	,	X	
Nearby waterside bars and restaurants	X		
Turbid/muddy water	X		
Heavy barge/boat traffic	Χ.		
Excellent birdwatching	X		
Loud noise (traffic, construction, etc.)	X		
High winds	Χ		

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
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 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - would often avoid the Delta by switching to boat at locations other than the Delta.
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The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (C.) I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
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- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
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- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
 - The construction would not affect the likelihood of me visiting the Clarksburg area.
 - I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on 20. the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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 - I would be much less likely to visit the Clarksburg Marina. E.
 - I am sure I would not visit the Clarksburg Marina during the construction project. F.
 - The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - I would be somewhat more likely to visit the Hood Supply Company. A.
 - I would be much more likely to visit the Hood Supply Company. В.
 - The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
 - I would be much less likely to visit the Hood Supply Company.
- T. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1–5 times. Α.
- Yes 6-10 times В.
- Yes 11-20 times
 - Yes more than 20 times
- No. E.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. Α.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. (O)
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins. E.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A West Delta around Antioch Suisun Marsh area B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
1	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	 When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones	✓		
before reaching fast		Arman and a second a second and	
water			
Nearby waterside bars	/	İ	
and restaurants			
Turbid/muddy water	×		
Heavy barge/boat			
traffic	X		
Excellent	×		
birdwatching	/\		
Loud noise (traffic,	V		
construction, etc.)	\sim		
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall Significant reduction in frequency of boating activity in the Delta overall

 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions. I would be very likely to avoid areas where barges create muddy conditions. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
 - I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. Α.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.

~not I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

15

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
 - I would be much more likely to visit the Clarksburg area.

 The construction would not affect the likelihood of me visiting the Clarksburg area.
 - I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina.
- I would be much more likely to visit the Clarksburg Marina.

The construction would not effect the likelihood of me visiting the Clarksburg Marina.

- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project. F.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
 - I would be somewhat less likely to visit the Hood Supply Company.
 - I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times.
- Yes 6-10 times
- Yes 11-20 times C.
- Yes more than 20 times D.
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. Α.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: $\frac{12}{13}$
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey? First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes Rent: Ves No If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B) 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20
If Answer to 3 is A, then end survey.
 4. What recreational boating activities do you usually undertake (select all that apply)? A) Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting
3. Other Swiwm

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?				
-(A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other				
6.	Where do you keep your boat during the summer				
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat 				
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing		J.,	
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars		<u> </u>	
and restaurants			
Turbid/muddy water			X
Heavy barge/boat			
traffic			X
Excellent			
birdwatching	X		
Loud noise (traffic,			X
construction, etc.)			
High winds		<u> </u>	, , , , , , , , , , , , , , , , , , , ,

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. Α.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
 - I would be very likely to avoid areas where barges create muddy conditions.
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I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

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This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. Α.
- Yes 6–10 times В.
- Yes 11-20 times C.
- Yes more than 20 times
- No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. Α.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. D.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey in there are changes to the proposed project later?
Prefer not to give contact info:
Name:
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Survey taker number: $12/13$ $2-8$.
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1. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes No Rent: Yes No If No to both rent and own then end survey.
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A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1–5 C. 6–10
D. 11–15 E. 15–20
More than 20 If Answer to 3 is A, then end survey.
 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting G. Other

5.		ng areas of the Delta best describes (circle all that apply)?	the areas of the Delta that you use for these
Č	B. North Delta arou C. South Delta arou D. Central Delta aro		
6.	Where do you keep	our boat during the summer	
	B. Away from the C. In the Delta in a D. In the Delta in a E. I have a home in	the Delta with an attached dock wh	the water here I keep my boat
7.	If answer to 6 is A o	r B, what is the zip code where you	keep your boat during summer?
 8. 9. 	A. Away from the B Away from the C. In the Delta in a D. In the Delta in a E. I have a home in	the Delta with an attached dock wh	the water
10.	When you visit the or other items from A. Yes, Gas B. Yes, Food and I C. Yes, bait or fish D. Yes, other item E. No	Delta marinas? Circle all that apply everages ing supplies	s, food and beverages, bait or fishing supplies,
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	Name of Marinas:	1) no vuta	
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Long or frequent 5 mph speed zones before reaching fast water		X	
Nearby waterside bars and restaurants		×	
Turbid/muddy water		X	
Heavy barge/boat traffic	×	,	
Excellent birdwatching		×	
Loud noise (traffic, construction, etc.)	\nearrow		
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B? Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B) I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions. Æ.
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.



I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.

 E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company.
 - I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1–5 times. Α.
- Yes 6-10 times В.
- Yes 11-20 times C.
- Yes more than 20 times
 - No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - It is somewhat likely that I will use the area.
- It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area.
- It is very unlikely that I will use the area.
- I am sure that I will not use the area once tunnel construction begins. E.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	12/13		12-4	
am working on this project boating activities in the De during construction of the WaterFix project. Your re with me to complete our su First, I would like to get so	Ita and to measure any proposed Twin Tunne sponses will only be reary? Some general information	s. The purpose of the changes in recreation of the changes in recreation of the changes in recreased about your recreased to the change of the	on and visitat called the BI Can you tal	ion that might occur OCP or California se about fifteen minutes g activities.
 Do you own a boat or Own: Yes Rent: Yes If No to both rent and own 	No No	at or other type of bo	oat to go boat	ing?
2. Which best describes	your boat or boats (sel	ect all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Oth M. Other: 3. Approximately how r A. I do not go boating B. 1–5	ner non-motorized boa nany times per year do		for recreation	nal boating?
C. 6–10 D. 11–15				
E. 15–20 F More than 20				
If Answer to 3 is A,	then end survey.			
4. What recreational bo A Fishing B. Wake boarding C. Water Skiing D. Cruising F. Visiting watersic	eating activities do you de bars and restaurants		select all that	apply)?
F. Hunting G. Other				·

5.	Which of the follow recreational activities		the Delta best describes the areas of the Delta that you use for these hat apply)?
(C. South Delta arou D. Central Delta aro	and Rio Vista, and Discovery ound Korth's	, Walnut Grove, Steamboat Slough area Bay area Pirate's Lair, Bethel Island, Franks Tract area
	E. Clarksburg, Ho F. Stockton, Wind G. Other	lmill Cove are	
6.	Where do you keep	your boat du	ring the summer
	B. Away from the	Delta in a sli	
			at my residence out of the water
Λ	D In the Delta in a E. I have a home i		rater ith an attached dock where I keep my boat
7.	If answer to 6 is A	or B, what is	the zip code where you keep your boat during summer?
8.	C. In the Delta in	Delta in a sli Delta in dry : dry storage or	p in the water storage or at my residence · at my residence out of the water
/	D) In the Delta in a E. I have a home i		ith an attached dock where I keep my boat
9.	If the answer to 8 is	s A or B, wha	t is the zip code where you keep your boat during the off season?
10.	When you visit the or other items from A. Yes, Gas B. Yes, Food and	Delta marina	n make purchases of gas, food and beverages, bait or fishing supplies, as? Circle all that apply.
	O. Yes, bait or fish D. Yes, other item E. No	hing supplies	
11	. If answer to 10 is A	, B, C, or D,	then: Which marina or marinas do you most often make purchases at?
	Name of Marinas:		Kn vista
		2)	
		3)	

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones		\sim	
before reaching fast			
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Nearby waterside bars		X	
and restaurants			
Turbid/muddy water	<u> </u>		
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traffic			
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birdwatching		<u>'</u>	
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13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
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- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. (D)
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- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. A.
- Yes 6-10 times B.
- Yes 11-20 times C.
- Yes more than 20 times (D)
 - No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - It is somewhat likely that I will use the area. A.
 - It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area. Ø.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins. E.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	12/13		[2-	<i>(</i> 0)
Hi, my name isam working on this project boating activities in the Del during construction of the p WaterFix project. Your res with me to complete our sur First, I would like to get son	ta and to measure any c roposed Twin Tunnel I ponses will only be rep	Project, sometimes ported in aggregate.	called the Can you	BDCP or California take about fifteen minutes
1. Do you-own a boat or d Own: Yes Rent: Yes If No to both rent and own	No No	or other type of bo	at to go bo	pating?
2. Which best describes y	our boat or boats (selec	et all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat J. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Othe M. Other:	_ _	ou visit the Delta f	for recreati	onal boating?
A. I do not go boating	in the Delta.			
B. 1–5 C. 6–10				
D. 11–15 _E.: 15–20				
F. More than 20				
, If Answer to 3 is A, th	hen end survey.			
4. What recreational boards. Fishing	ting activities do you us	sually undertake (s	elect all the	at apply)?
B. Wake boarding				
C. Water Skiing (D) Cruising				
E Visiting waterside F. Hunting	bars and restaurants			
G. Other	_			

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
q	West Delta around Antioch Suisun Marsh area B. Worth Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
(A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies Yes, other items No
11.	fanswer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	<u> </u>		
Long or frequent 5			
mph speed zones			
before reaching fast	Χ		
water	,		
Nearby waterside bars	V		
and restaurants			
Turbid/muddy water			
Heavy barge/boat	$\overline{}$		
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,	✓		
construction, etc.)			
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

(Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?

A. I have no reaction one way or the other.

- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
 The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.

I would be much more likely to visit the Clarksburg Marina.

The construction would not effect the likelihood of me visiting the Clarksburg Marina.

I would be somewhat less likely to visit the Clarksburg Marina.

I would be much less likely to visit the Clarksburg Marina.

I am sure I would not visit the Clarksburg Marina during the construction project.

- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times.
 Yes 6–10 times
 - C. Yes 11–20 times
 - D. Yes more than 20 times
 - E. No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - D. It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	12/13	12-	-
boating activities in the Del during construction of the p WaterFix project. Your res with me to complete our sur	. I am a student as a part of my studies. The part and to measure any change roposed Twin Tunnel Project ponses will only be reported invey?	s in recreation and visitation, sometimes called the BDCF n aggregate. Can you take a	that might occur or California bout fifteen minutes
1. Do you own a boat or d Own: Yes Rent: Yes If No to both rent and own	o you rent a houseboat or othe No No 1 then end survey.	er type of boat to go boating	?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other M. Other:	– ıny times per year do you visi		oating?
If Answer to 3 is A, th	en end survey.		
A. Fishing B. Wake boarding C. Water Skiing D. Cruising	ng activities do you usually u bars and restaurants	ndertake (select all that appl	y)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
C	A. West Delta around Antioch Suisun Marsh area B?North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Isletour
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing		X	
Long or frequent 5		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
mph speed zones		X	
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water	X		
Heavy barge/boat		X	
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,		X	
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described
 - A. No change in frequency of boating activity in the Delta overall
 - B Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - (B) I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?



This is not a concern for me.

- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?



I have no reaction one way or the other.

I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general E. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- (D.) I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Doesn't abbut

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: 12/13	2-12
Hi, my name is I am a student at the University of Caliam working on this project as a part of my studies. The purpose of this survey is boating activities in the Delta and to measure any changes in recreation and visit during construction of the proposed Twin Tunnel Project, sometimes called the WaterFix project. Your responses will only be reported in aggregate. Can you t with me to complete our survey? First, I would like to get some general information about your recreational boating.	ation that might occur BDCP or California ake about fifteen minutes
1. Do you own a boat or do you rent a houseboat or other type of boat to go boo own: Yes No Rent: Yes No If No to both rent and own then end survey.	ating?
2. Which best describes your boat or boats (select all that apply)?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:	anal boating?
 Approximately how many times per year do you visit the Delta for recreation. I do not go boating in the Delta. 	onai boating?
B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20	
If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you usually undertake (select all that A). Fishing B) Wake boarding Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting 	t apply)?
G. Other	

	Southeas
5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
Ć	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area
	C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area
	E. Clarksburg, Hood, Walnut Grove, Locke area.
	F. Stockton, Windmill Cove area
	G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.
	B. Away from the Delta in a slip in the water
	C. In the Delta in dry storage or at my residence out of the water D: In the Delta in a slip in the water
	E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?
	A. Away from the Delta in a slip in the water
	B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water
(To In the Delta in a slin in the water
	E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	Lait on fishing cumplies
10). When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.
(À. Yes, Gas
	B. Yes, Food and beverages C. Yes, bait or fishing supplies
(D. Yes, other items
•	E. No
]	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	×		
Long or frequent 5	· ·		
mph speed zones	X		
before reaching fast			
water			
Nearby waterside bars		X	
and restaurants			
Turbid/muddy water	<u> </u>		
Heavy barge/boat			
traffic			
Excellent		\sim	
birdwatching			
Loud noise (traffic,	\ \X		
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall

 B. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - ...d. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
 - I would be very likely to avoid areas where barges create muddy conditions.
 - I would be somewhat likely to boat more often in areas where barges create muddy conditions.
 - I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
 - I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- Æ, No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	12/13	12-	3	
boating activities in the De during construction of the J	Ita and to measure any c proposed Twin Tunnel F sponses will only be rep irvey?	changes in recreation : Project, sometimes cal orted in aggregate. C	ty of California at Santa Cruz. I survey is to analyze recreationa and visitation that might occur lled the BDCP or California Can you take about fifteen minut hal boating activities.	
1. Do you own a boat or o Own: Yes Rent: Yes If No to both rent and ow	No No	or other type of boat	to go boating?	
2. Which best describes y	our boat or boats (select	t all that apply)?		
A. Cabin cruiser B. Wakeboard boat Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Othe M. Other:	er non-motorized boat —			
3. Approximately how material A. I do not go boating B. 1–5 C. 6–10 D. 11–15 E. 15–20 F. More than 20 If Answer to 3 is A, the		ou visit the Delta for r	recreational boating?	
A) Fishing B. Wake boarding C. Water Skiing Cruising	ing activities do you usu bars and restaurants	ially undertake (select	t all that apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area Proposition Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) VO VISTU
	2)
	3)

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- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
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- D. I would be somewhat less likely to visit the Clarksburg area.
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E) No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - D. It is very unlikely that I will use the area.
 - E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: \(\frac{1}{2}\)	² <u>113</u>	12-14	
boating activities in the Delta during construction of the proj WaterFix project. Your respo with me to complete our surve	and to measure any changes in r posed Twin Tunnel Project, som nses will only be reported in agg	e University of California at Santa Cruz. I use of this survey is to analyze recreational recreation and visitation that might occur netimes called the BDCP or California gregate. Can you take about fifteen minute recreational boating activities.	
1. Do you own a boat or do y Own: Yes Rent: Yes If No to both rent and own the	ou rent a houseboat or other typ No No hen end survey.	pe of boat to go boating?	
2. Which best describes your	boat or boats (select all that app	ply)?	
	times per year do you visit the l	Delta for recreational boating?	
A. I do not go boating in the B. 1–5	ne Delta.		
C. 6–10 D. 11–15			
E. 15-20			
F. More than 20 If Answer to 3 is A, then	end survey.		
4. What recreational boating A Fishing B. Wake boarding C. Water Skiing Cruising E) Visiting waterside bar F. Hunting	activities do you usually underta	take (select all that apply)?	
G. Other			

5. Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
A West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6. Where do you keep your boat during the summer
Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
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11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
Name of Marinas: 1) Big break Marina
2)
3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones		1 1	
before reaching fast			
water			
Nearby waterside bars	1 1		
and restaurants			
Turbid/muddy water	*		
Heavy barge/boat			X
traffic			, \
Excellent			
birdwatching		/	
Loud noise (traffic,	7		
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - (C) I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
- E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area. C.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
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 - 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
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 - C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- Q. I would be somewhat less likely to visit the Hood Supply Company.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times.
 - B. Yes 6–10 times
 - C. Yes 11–20 times
 - D. Yes more than 20 times
 - E. No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - It is very unlikely that I will use the area.

 I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

ALLIANDE MARINE : 3665 GILBUR AVE Address:

Phone:

Email: B. DULANG CALLIANCENARINE . NET

Survey taker number: 12/13	12-15
Hi, my name is I am a student at the Universam working on this project as a part of my studies. The purpose of this boating activities in the Delta and to measure any changes in recreation during construction of the proposed Twin Tunnel Project, sometimes of WaterFix project. Your responses will only be reported in aggregate. with me to complete our survey? First, I would like to get some general information about your recreation.	n and visitation that might occur called the BDCP or California Can you take about fifteen minutes
Do you own a boat or do you rent a houseboat or other type of boat Own: Yes	at to go boating?
2. Which best describes your boat or boats (select all that apply)?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:	
 3. Approximately how many times per year do you visit the Delta for A. I do not go boating in the Delta. B. 1-5 6-10 D. 11-15 E. 15-20 	r recreational boating?
F. More than 20	
If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you usually undertake (selection A. Fishing B. Wake boarding C. Water Skiing Cruising Visiting waterside bars and restaurants F. Hunting G. Other 	ect all that apply)?

5. Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?	
A West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area	
C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area	
E. Clarksburg, Hood, Walnut Grove, Locke area.	
F. Stockton, Windmill Cove area	
G. Other	
6. Where do you keep your boat during the summer	
Away from the Delta in dry storage or at my residence.	
D. Away from the Delta in a slin in the Water	
C. In the Delta in dry storage or at my residence out of the water Delta in a slip in the water	
E. I have a home in the Delta with an attached dock where I keep my boat	
7. If answer to 6 is A or B, what is the zip code where you keep your boat during summer?	
8. Where do you keep your boat in the off season?	
A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence	
C. In the Delta in dry storage or at my residence out of the water	
(n) In the Delta in a slip in the water	
E. I have a home in the Delta with an attached dock where I keep my boat	
9. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?	
c c bayayagas bait or fishing supplies.	
10. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.	
A Yes, Gas	
B) Yes, Food and beverages C. Yes, bait or fishing supplies	
D. Yes, other items	
E. No	
a l ultrana et	n
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at	ſ
Name of Marinas: 1) rew bridge marina.	
2)	
3)	

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5			
mph speed zones		l X	
before reaching fast		· ` `	
water			
Nearby waterside bars	<u> </u>		
and restaurants			
Turbid/muddy water	χ		
Heavy barge/boat	<u> </u>		
traffic			
Excellent		\downarrow	
birdwatching			
Loud noise (traffic,	X		
construction, etc.)			
High winds		X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



Νo

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - @ Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. Α.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions. Õ.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - D. It is very unlikely that I will use the area.
 - E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:_	12/13		13-1	
Hi, my name is	ect as a part of my studies Delta and to measure any e proposed Twin Tunnel responses will only be re survey?	 The purpose of the changes in recreation Project, sometimes ported in aggregate. 	nis survey is to and on and visitation t called the BDCP. Can you take ab	alyze recreational that might occur or California out fifteen minutes
1. Do you own a boat o Own: Yes Rent: Yes If No to both rent and o	No No	t or other type of bo	oat to go boating?	
2. Which best describes	s your boat or boats (sele	ct all that apply)?		
M. Other:	nt ther non-motorized boat	you visit the Delta f	or recreational bo	ating?
A. I do not go boatin		you visit the Delta I	or recreational co	utilig.
B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20 If Answer to 3 is A,	then end survey.			
4. What recreational box. Fishing B. Wake boarding C. Water Skiing Cruising Visiting watersic F. Hunting G. Other	oating activities do you u	sually undertake (se	lect all that apply)? .

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
(A West Delta around Antioch Suisun Marsh area
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	E. Clarksburg, Hood, Walnut Grove, Locke area.
	F. Stockton, Windmill Cove area
	G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.
	D. Away from the Delta in a slip in the Waler
	C. In the Delta in dry storage or at my residence out of the water
	(b) In the Delte in a clin in the water
	E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
0	Where do you keep your boat in the off season?
8.	A A way from the Delta in a slip in the water
	D. A way from the Delta in dry storage or at my residence
	C. In the Delta in dry storage or at my residence out of the water
	(m) I it Delta in a alin in the Water
	E. I have a home in the Delta with an attached dock where I keep my boat
	. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
9	If the answer to 8 is A or B, what is the zip code where you keep your course
1	0. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies,
1	or other items from Delta marinas? Circle all that apply.
	A. Yes, Gas
	B. Yes, Food and beverages
	Yes, bait or fishing supplies
	Yes, other items
	E. No
	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	T-10.10.
	, , , , , , , , , , , , , , , , , , ,
	2)
	·
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing		<u> </u>	
Long or frequent 5			
mph speed zones	\checkmark		
before reaching fast			
water			
Nearby waterside bars	✓		
and restaurants	'		
Turbid/muddy water	Χ΄		
Heavy barge/boat			
traffic	λ		
Excellent	✓ ·		
birdwatching			
Loud noise (traffic,	Σ.		
construction, etc.)	/	<u> </u>	
High winds		\X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
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The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
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- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
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It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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 - 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- (E.) No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey here are changes to the proposed project later?	if
Prefer not to give contact info:	
Name:	
Address:	
Phone:	
Email:	

Hi, my name is	Survey taker number:	2/(3	13-2
Own: Yes No Rent: Yes No If No to both rent and own then end survey. 2. Which best describes your boat or boats (select all that apply)? A Cabin cruiser B Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20 If Answer to 3 is A, then end survey. 4. What recreational boating activities do you usually undertake (select all that apply)? A Fishing B) Wake boarding C. Water Skiing D) Cruising	am working on this project as boating activities in the Delta during construction of the pro WaterFix project. Your responsible me to complete our surve	a part of my studies. The purpose of this sand to measure any changes in recreation apposed Twin Tunnel Project, sometimes calonses will only be reported in aggregate. Ceey?	and visitation that might occur lled the BDCP or California and you take about fifteen minutes
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F. Hunting G. Other	A. Fishing (B) Wake boarding C: Water Skiing (D) Cruising E. Visiting waterside ba F. Hunting		ct all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area C Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	 When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, other items from Delta marinas? Circle all that apply. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) VIELVA S PEDA-
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones	X	·	
before reaching fast	()		
water			
Nearby waterside bars	X		
and restaurants	/		
Turbid/muddy water	\X		
Heavy barge/boat	1		
traffic			
Excellent	N		
birdwatching	1		
Loud noise (traffic,	X		
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me.
- I would be somewhat likely to avoid areas where barges create muddy conditions. B
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
 - I am very confident that DWR will make a good faith effort to reduce muddy water and general E. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B) Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
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Email:

Survey taker number:	12 13	,	13-3	
Hi, my name is am working on this project to boating activities in the Del during construction of the p WaterFix project. Your reswith me to complete our sur First, I would like to get son	ta and to measure any or roposed Twin Tunnel I ponses will only be represely? The general information of the general information of the second control of	Project, sometimes call ported in aggregate. Can about your recreations	ed the BDCP o an you take abo al boating activ	or California out fifteen minutes
1. Do you own a boat or o Own: Yes Rent: Yes If No to both rent and ow	No	t or other type of boat t	o go boating?	
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	Name of Marinas: 1) Hap Shay Shay
	2)
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
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Long or frequent 5			
mph speed zones			
before reaching fast			
Nearby waterside bars	\(\sigma\)		
and restaurants			
Turbid/muddy water	X		
Heavy barge/boat	χ.	}	
traffic	/ `		
Excellent	1		_
birdwatching	/		
Loud noise (traffic,	1 1		
construction, etc.)	 		
High winds		<u>i</u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - (E.) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
 - D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
 - I would be somewhat less likely to visit the Clarksburg area.
 - I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B Yes 6–10 times
 - C. Yes 11–20 times
 - D. Yes more than 20 times
 - E. No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E) I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey it there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	12/13		13-4	
Hi, my name isam working on this project boating activities in the Del during construction of the p WaterFix project. Your reswith me to complete our su First, I would like to get so	Ita and to measure any or proposed Twin Tunnel F ponses will only be rep rvey?	changes in recreation an Project, sometimes calle orted in aggregate. Car	d visitation that mid the BDCP or Cal	ight occur lifornia fteen minutes
1. Do you own a boat or of Own: Yes Rent: Yes If No to both rent and ow	No (No	or other type of boat to	go boating?	
2. Which best describes y	our boat or boats (selec	t all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Othe M. Other:				
3. Approximately how may A. I do not go boating in B. 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20	in the Delta.	ou visit the Delta for red	reational boating?	
If Answer to 3 is A, th	en end survey.			
4. What recreational boat A. Fishing B. Wake boarding C. Water Skiing C. Cruising E. Visiting waterside F. Hunting C. Other Tel Ski	ing activities do you uso	ually undertake (select a	ill that apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
4	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water In the Delta in dry storage or at my residence out of the water In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C) In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

	More Likely	No Change	Less Likely
Condition =	MOLCHEROLY		
Excellent fishing			
Long or frequent 5	1		
mph speed zones	\ \ \		
before reaching fast			
water		<u> </u>	
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat	X		
traffic			
Excellent		\ X	
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds		X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

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- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
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 - A. No change in location of my boating activity.
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- This is not a concern for me. A.
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- It is somewhat unlikely that I will use the area.
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Prefer not to give contact info: or
Name:
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Survey taker number:	(2/15	p and a second	3-	5
Hi, my name isam working on this project boating activities in the Deduring construction of the WaterFix project. Your rewith me to complete our strict, I would like to get so	t as a part of thy studies. Letta and to measure any che proposed Twin Tunnel Presponses will only be repourvey? The general information a	nanges in recreation a roject, sometimes cal arted in aggregate. Cabout your recreation	and visited the Elan you to	ation that might occur BDCP or California ake about fifteen minutes ng activities.
Do you own a boat or Own: Yes Rent: Yes If No to both rent and over	No No	or other type of boat	to go bo	ating?
2. Which best describes	your boat or boats (select	all that apply)?		
M. Other:	her non-motorized boat	www.icit the Dalta for	recreativ	anal hoating?
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B. 1–5 C. 6–10				
D. 11–15 E. 15–20				
(F.) More than 20				
If Answer to 3 is A,	then end survey.			
	oating activities do you us	ually undertake (sele	ect all tha	it apply)?
A. FishingB. Wake boarding				
C. Water Skiing				
Cruising E. Visiting waterside	de bars and restaurants			
F. Hunting G. Other				

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E. Clarksburg, Hood, Walnut Grove, Locke area.
F. Stockton, Windmill Cove area
G. Other
6. Where do you keep your boat during the summer
(A) Away from the Delta in dry storage or at my residence.
Courtho Dolto in a clin in the Water
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(A) a t T t ' - alim in the worter
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10. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies,
or other items from Delta marinas? Circle all that apply.
A Ves Gas
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11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
Name of Marinas: 1) 40 NJY
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing		<u> </u>	
Long or frequent 5			
mph speed zones		\ X	
before reaching fast			
water			
Nearby waterside bars	1 1		Ĭ
and restaurants			
Turbid/muddy water			
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traffic			
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birdwatching			
Loud noise (traffic,	X		
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High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

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 - ூ. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me.
- I would be somewhat likely to avoid areas where barges create muddy conditions. Æ?
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
 - I am very confident that DWR will make a good faith effort to reduce muddy water and general E. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
 - I would be somewhat more likely to visit the Clarksburg area. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.

 I would be much less likely to visit the Clarksburg area.
 - I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on 20. the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. (P) E. I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project. F.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. В. C.
- I would be somewhat less likely to visit the Hood Supply Company.
- **D** E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. A.
- Yes 6-10 times В.
- Yes 11-20 times C.
- Yes more than 20 times D.
- (Ē) No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins. E.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Surve	y taker number:		12/13	13-	6	
am wo boating during Waterl with m	rking on this projec g activities in the De construction of the	t as a part of melta and to mea proposed Twinsponses will our urvey?	ny studies. The pur asure any changes in m Tunnel Project, so only be reported in a	pose of this survey in recreation and visometimes called the aggregate. Can you	california at Santa Cruz. It is to analyze recreational sitation that might occure BDCP or California utake about fifteen minute	S
Own: Rent:	you own a boat or Yes Yes to both rent and ow	No No		ype of boat to go b	poating?	
A. B. C. D. E. F. G. H. I. J. K. L.	Day boat Jet Boat Big Cat Performance boat Sail boat Kayak/Canoe/Oth Other:	er non-motoriz	zed boat			
A. Ø. C. D. E. F.	pproximately how m I do not go boating 1–5 6–10 11–15 15–20 More than 20 Answer to 3 is A, t	in the Delta.		e Delta for recreat	ional boating?	
A. B. C. D. E. F.				ertake (select all th	at apply)?	

5. Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6. Where do you keep your boat during the summer
A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7. If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8. Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
 10. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1)
2)
3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	<u> </u>		
Long or frequent 5			
mph speed zones before reaching fast water	X		
Nearby waterside bars and restaurants	A		
Turbid/muddy water	N N		
Heavy barge/boat traffic	X		
Excellent birdwatching		\sim	
Loud noise (traffic, construction, etc.)	\nearrow		
High winds		N	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - (c). I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
 - I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions.
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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. Α.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- I would be somewhat less likely to visit the Clarksburg Marina.
 - E. I would be much less likely to visit the Clarksburg Marina.
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 - 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
 - B. I would be much more likely to visit the Hood Supply Company.
 - C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times.

 Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:		12/13		13-7	
boating activities in the De during construction of the p WaterFix project. Your res with me to complete our su First, I would like to get so	proposed Tv sponses will arvey? ome general	vin Tunnel Pro only be report information a	oject, sometime rted in aggregate bout your recres		a
1. Do you own a boat or of Own: Yes Rent: Yes If No to both rent and own	No No		r other type of l	poat to go boating?	
2. Which best describes	your boat or	boats (select	all that apply)?		
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat H. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Oth M. Other:	her non-mot		on visit the Delt	a for recreational boating?	
3. Approximately how in A. I do not go boating B. 1–5 C. 6–10 D. 11–15 E. 15–20 F. More than 20	nany times g in the Del	per year do yo	on Aisit the Deit	a for recreational boating?	
If Answer to 3 is A,	then end s	urvey.			
4. What recreational both A. Fishing B. Wake boarding C. Water Skiing C. Cruising E. Visiting watersi F. Hunting G. Other			ually undertake	(select all that apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
Æ	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
/	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10.	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11.	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing		X	
Long or frequent 5			
mph speed zones	\backslash		
before reaching fast	/ \		
water			
Nearby waterside bars	\backslash		
and restaurants	, , , , , , , , , , , , , , , , , , , ,		
Turbid/muddy water	X		
Heavy barge/boat	Vì		
traffic	\sim		
Excellent		X	
birdwatching		/ ~	
Loud noise (traffic,	X		
construction, etc.)			
High winds		V	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

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 - C. Significant reduction in frequency of boating activity in the Delta overall
 - ①. Increase in frequency of boating activity in the Delta overall.
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 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - (i) I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

C.) I would be very likely to avoid areas where barges create muddy conditions.

- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
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- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D.

I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.

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Thank you for those responses. Nowhave a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
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 The construction would not affect the likelihood of me visiting the Clarksburg area.
 - I would be somewhat less likely to visit the Clarksburg area.
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- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
 - I would be somewhat less likely to visit the Hood Supply Company.
 - I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- Yes 1–5 times.
 - B. Yes 6–10 times
 - C. Yes 11–20 times
 - D. Yes more than 20 times
 - E. No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
 - It is very unlikely that I will use the area.

 I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker numb	per: 1 2 / 1 \(\)	13-10
boating activities in during construction	project as a part of my studie the Delta and to measure any of the proposed Twin Tunnel	student at the University of California at Santa Cast. The purpose of this survey is to analyze recreat changes in recreation and visitation that might of Project, sometimes called the BDCP or Californ eported in aggregate. Can you take about fifteen to
with me to complete First, I would like to	2	n about your recreational boating activities.
		at or other type of boat to go boating?
Own: (Yes)	No	
Rent: Yes	No	
If No to both rent a	and own then end survey.	
2. Which best desc	cribes your boat or boats (sele	ect all that apply)?
A. Cabin cruise		
B. Wakeboard	boat	
C. Ski boat		
D. Runabout		
E. Pontoon boa	at	
(F) House boat		
G. Day boat		
H. Jet Boat		
 Big Cat 		
J. Performance	e boat	
K. Sail boat		
L. Kayak/Cand	e/Other non-motorized boat	
M. Other:		
		you visit the Delta for recreational boating?
-	oating in the Delta.	
B. 1–5		
C. 6-10		
D. 11–15	•	
E. 15–20		
(F) More than 2	0	
If Answer to 3 i	is A, then end survey.	
	al boating activities do you us	sually undertake (select all that apply)?
A. Fishing		
B. Wake board	•	
C. Water Skiin	3	
4. Cruising		
	erside bars and restaurants	
F. Hunting		
G. Other		

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area (B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area
	D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area
	G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.
	B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water
	In the Delta in a slip in the waterI have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10). When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply.
	(A.) Yes, Gas (B.) Yes, Food and beverages (Q.) Yes, bait or fishing supplies
	D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

	More Likely	No Change	Less Likely
Condition	Wiore Encery	- - - - - -	
Excellent fishing			
Long or frequent 5	1		
mph speed zones			i i
before reaching fast			1
water			
Nearby waterside bars			
and restaurants		ļ	
Turbid/muddy water			
Heavy barge/boat		X	ļ
traffic			
Excellent	\		
birdwatching		1	
Loud noise (traffic,		X	
construction, etc.)		/	
High winds		X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - Æ.) I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - (E) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. Α.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- I would be very likely to boat more often in areas where barges create muddy conditions. Ε.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17: operations plan?
- I have no reaction one way or the other.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and A. B. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
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Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
 - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
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Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



Yes 1-5 times.

Yes 6–10 times

Yes 11–20 times



Yes more than 20 times

No.

- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- (D). It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	13-12
Hi, my name is I am a student at the Unive am working on this project as a part of my studies. The purpose of the boating activities in the Delta and to measure any changes in recreating during construction of the proposed Twin Tunnel Project, sometimes WaterFix project. Your responses will only be reported in aggregate with me to complete our survey? First, I would like to get some general information about your recreating the properties of the proposed Twin Tunnel Project, sometimes with me to complete our survey?	rsity of California at Santa Cruz. I his survey is to analyze recreational on and visitation that might occur called the BDCP or California. Can you take about fifteen minutes
1. Do you own a boat or do you rent a houseboat or other type of b Own: Yes No Rent: Yes No If No to both rent and own then end survey.	
2. Which best describes your boat or boats (select all that apply)?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta A. I do not go boating in the Delta. B. 1-5 C. 6-10	n for recreational boating?
D. 11–15 E. 15–20	
(F) More than 20	
If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you usually undertake A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting G. Other 	(select all that apply)?

5. Which of the following areas of the Delta best describes the areas of the Delta that you use for these
5. Which of the following areas of the Detail of the sembly?
recreational activities (circle all that apply)?
The standard Antioch Suigun Marsh area
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G. Other
hoot during the summer
6. Where do you keep your boat during the summer
A. Away from the Delta in dry storage or at my residence.
a d Daka in a glup in IDP WAIEL
B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water
D In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7. If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
7. If answer to 6 is A or B, what is the zip code transfer.
8. Where do you keep your boat in the off season?
come the Delta in a slin in life water
B Away from the Delta in dry storage or at my residence out of the water O. In the Delta in dry storage or at my residence out of the water
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E. I have a nome in the Dona with an arms.
9. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
9. If the answer to 8 is A of B, what is the angle of the answer to 8 is A of B, what is the angle of the ang
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or other items from Delta marinas? Circle all that apply.
or other items from Benta married
Yes, Gas
(c) Ves heit or fiching supplies
Yes, Food and beverages C Yes, bait or fishing supplies D Yes, other items
D. 165, other rema
E. No
to the make nurchases at?
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
Name of Marinas: 1)
2)
2)
· ——
3)

~ 10.5	More Likely	No Change	Less Likely
Condition	With Likely		
Excellent fishing			
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water	<u> </u>		
Heavy barge/boat	X		
traffic		 	
Excellent		X	
birdwatching	<u> </u>		
Loud noise (traffic,	X		
construction, etc.)	1		
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- Α. This is not a concern for me.
- В. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (C) (D) I would be very likely to avoid areas where barges create muddy conditions.
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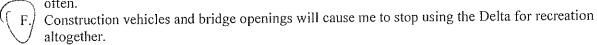
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 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less



Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.C. The construction would not affect the likelihood of me visiting the Clarksburg area.
 - I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on 20. the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. Α.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project. E.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. Α.
- I would be much more likely to visit the Hood Supply Company. B.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. E.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times.
- Yes 6-10 times
 - Yes 11-20 times
 - Yes more than 20 times
 - No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - It is somewhat likely that I will use the area.
- It is very likely that I will use the area.
 - It is somewhat unlikely that I will use the area.
- It is very unlikely that I will use the area.
- I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number: $12/13$ $13-13$
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey? First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes No Rent: Yes No If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:
 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1-5 C. 6-10 D. 11-15 E. 15-20 More than 20
If Answer to 3 is A, then end survey.
 4. What recreational boating activities do you usually undertake (select all that apply)? (A) Fishing (B) Wake boarding (C) Water Skiing (D) Cruising (E) Visiting waterside bars and restaurants (F) Hunting
D Cruising C Visiting waterside bars and restaurants

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area
	(B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area
	South Dolta ground Discovery Bay area
	D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area
	E. Clarksburg, Hood, Walnut Grove, Locke area.
	F. Stockton, Windmill Cove area
	G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence.
	B. Away from the Delta in a slip in the water
	C. In the Delta in dry storage or at my residence out of the water
	(D) In the Delta in a slip in the water
	E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season?
	A Away from the Delta in a slip in the water
	B. Away from the Delta in dry storage or at my residence
	C. In the Delta in dry storage or at my residence out of the water
	In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	- Leit or fishing cumplies
1). When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies,
	or other items from Delta marinas? Circle all that apply.
	(A) Yes, Gas
	B. Yes, Food and beverages Yes, bait or fishing supplies
	D) Yes, other items
	E. No
	- validation in a marinea do you most often make purchases at?
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	SMALL IN KID VISHA MARINA
	Name of Marinas: 1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Name of Marinas: 1) Rio Vista Marina 2) I Sleton
٠	
	3)
	\cdot

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5		, `	
mph speed zones			
before reaching fast			
water		l .	
Nearby waterside bars		X	
and restaurants		/ \	
Turbid/muddy water		<u> </u>	
Heavy barge/boat			
traffic			
Excellent		\ \X	
birdwatching			
Loud noise (traffic,			
construction, etc.)		,	
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A.) No change in frequency of boating activity in the Delta overall. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - (A) No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?

This is not a concern for me.

I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions. Ċ.

I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.

I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?

I have no reaction one way or the other.

I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general Ε. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?

A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.

- B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
- C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
- D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
- E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
- F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area. I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.

 (C.) The construction would not effect the likelihood of me visiting the Hood Supply Company.
 - I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- (A.) Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
 - It is very likely that I will use the area.
 - It is somewhat unlikely that I will use the area.
 - It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey tak	er number: \\\(\)	}	13-14	
boating acti during cons WaterFix p with me to	g on this project as a part ivities in the Delta and to struction of the proposed roject. Your responses v complete our survey?	of my studies. The pur measure any changes i Twin Tunnel Project, s will only be reported in	the University of California a rpose of this survey is to anal in recreation and visitation th ometimes called the BDCP of aggregate. Can you take about recreational boating activ	yze recreational at might occur or California out fifteen minutes
Own: Yes	y) No		type of boat to go boating?	
2. Which	best describes your boat	or boats (select all that	apply)?	
B. Wa C. Ski D. Ru E. Poi F. Ho G. Da H. Jet I. Big J. Pei K. Sai L. Ka M. Otl	ntoon boat buse boat y boat Boat g Cat rformance boat il boat yak/Canoe/Other non-me			
A. I do B. 1-: C. 6- D. 11- E. 15-	not go boating in the De 5 10		he Delta for recreational boa	ting?
If Ans	wer to 3 is A, then end s	survey.		
A Fis B Wa C Wa C Cr E Vis	recreational boating activeshing shing ake boarding ater Skiing uising siting waterside bars and anting		dertake (select all that apply)	?
-	her			

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
2	West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water In the Delta in dry storage or at my residence out of the water In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water In the Delta in a slip in the water I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. (A) Yes, Gas (B) Yes, Food and beverages (C) Yes, bait or fishing supplies (D) Yes, other items (E) No
11	I. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) ISIPHON
	2)
	3)

Condition	More Likęly	No Change	Less Likely
Excellent fishing	X	1 1	
Long or frequent 5			
mph speed zones	X,		
before reaching fast			1
water			
Nearby waterside bars		\ \X	·
and restaurants		- /	
Turbid/muddy water	<u> </u>		
Heavy barge/boat			
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,	· X		
construction, etc.)		 	
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - (A) No change in frequency of boating activity in the Delta overall B. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall

 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B) I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
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The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. C. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
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- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
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- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. Α.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area. E.
- I am sure that I would not visit the Clarksburg area at all during the construction project. F.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- I would be somewhat less likely to visit the Clarksburg Marina.
 - E. I would be much less likely to visit the Clarksburg Marina.
 - F. I am sure I would not visit the Clarksburg Marina during the construction project.
 - The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
 - Yes 11–20 times
 Yes more than 20 times
 - E. No.
 - E. NO.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
 - B. It is very likely that I will use the area.
 - C. It is somewhat unlikely that I will use the area.
- It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey i here are changes to the proposed project later?	f
Prefer not to give contact info:	
Name:	
Address:	
Phone:	
Email:	

. at 1.	a	12-15	
Survey taker number: 12/1.	<u> </u>	13-15	
Hi, my name isam working on this project as a par boating activities in the Delta and to during construction of the proposed WaterFix project. Your responses with me to complete our survey? First, I would like to get some general	. I am a student at the tof my studies. The purper of measure any changes in a Twin Tunnel Project, somewill only be reported in against information about you	netimes called the BDCP or Calhor gregate. Can you take about fifteer recreational boating activities.	ma
Do you own a boat or do you r N	ent a nouseodar or other 5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Dent: Ves N	0		
If No to both rent and own then	end survey.		
		.pgly)?	
2. Which best describes your box	at of boats (select an time in	FI V	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat Sail boat Kayak/Canoe/Other non- M. Other: 3. Approximately how many tin A. I do not go boating in the B. 1-5 6-10 D. 11-15 E. 15-20	mes per year do you visit t	he Delta for recreational boating?	
F. More than 20			
If Answer to 3 is A, then e	nd survey.		
 A. Fishing B. Wake boarding C. Water Skiing D. Cruising Visiting waterside bars F. Hunting 		ndertake (select all that apply)?	
G. Other		·	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
/	A. West Delta around Antioch Suisun Marsh area Benorth Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
1	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A Yes, Gas Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Islataur
	2)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5	*	·	
mph speed zones	1		
before reaching fast			
water			
Nearby waterside bars		V	
and restaurants			
Turbid/muddy water	<u> </u>		
Heavy barge/boat			
traffic			
Excellent		1	
birdwatching		<u> </u>	
Loud noise (traffic,	×	,	
construction, etc.)			
High winds		X	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall

 Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.

 D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- (D.) I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - (E) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. B.
- The construction would not affect the likelihood of me visiting the Clarksburg area. C.
- I would be somewhat less likely to visit the Clarksburg area. D.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on 20. the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. Α.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- C. D. I would be somewhat less likely to visit the Clarksburg Marina.
- I would be much less likely to visit the Clarksburg Marina. E.
- I am sure I would not visit the Clarksburg Marina during the construction project. F.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. (D)
- I would be much less likely to visit the Hood Supply Company.
- E. I am sure I would not visit the Hood Supply Company during the construction project. F.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times.
- Yes 6–10 times В.
- Yes 11-20 times C.
- Yes more than 20 times D.
- No. E.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins. E.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:
Survey taker number: \(\lambda \)
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational boating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey? First, I would like to get some general information about your recreational boating activities.
1. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes No No If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1-5 C 6-10 D. 11-15
E. 15–20 F. More than 20
If Answer to 3 is A, then end survey.
 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing Cruising Visiting waterside bars and restaurants F. Hunting

G. Other ____

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area (B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area (C. South Delta around Discovery Bay area (D) Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area (E. Clarksburg, Hood, Walnut Grove, Locke area. (F. Stockton, Windmill Cove area (G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10.	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A Yes, Gas B Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11.	If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Band W 2) Central Delta Marinas 3)

Condition	More Likely	No Change	Less Likely
Excellent fishing		Z	
Long or frequent 5			
mph speed zones			
before reaching fast			
water			1
Nearby waterside bars		,	'
and restaurants	<u> </u>		×
Turbid/muddy water			
Heavy barge/boat			\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \
traffic			
Excellent	\vee		_
birdwatching	/		N
Loud noise (traffic,			
construction, etc.)			X
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - (A) No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
- B. I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?

I have no reaction one way or the other.

- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.

I am very confident that DWR will make a good faith effort to reduce muddy water and general E. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
 - I would be much less likely to visit the Clarksburg area.

I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
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- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- (E.) No
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- _D. It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

or

Name: LINDA OPRANTE

Address: 517 Marianna Pl., Rio VISTA 94571

Phone: 707 - 580 -490 9

Email: 1154000 outlock.com

Surve	taker number: 16 $\sqrt{6-2}$
am wo boating during Waterl with m	name is I am a student at the University of California at Santa Cruz. I rking on this project as a part of my studies. The purpose of this survey is to analyze recreational activities in the Delta and to measure any changes in recreation and visitation that might occur construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California Tix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes e to complete our survey? would like to get some general information about your recreational boating activities.
Own: Rent:	you own a boat or do you rent a houseboat or other type of boat to go boating? Yes No Yes both rent and own then end survey.
2. W	nich best describes your boat or boats (select all that apply)?
B. C. D. E. H. I. J. K. L.	Cabin cruiser Wakeboard boat Ski boat Runabout Pontoon boat House boat Day boat Jet Boat Big Cat Performance boat Sail boat Kayak/Canoe/Other non-motorized boat Other:
A. B. C.	proximately how many times per year do you visit the Delta for recreational boating? I do not go boating in the Delta. 1-5 6-10 11-15 15-20 More than 20
If	Answer to 3 is A, then end survey.
	hat recreational boating activities do you usually undertake (select all that apply)? You Fishing Wake boarding Water Skiing Cruising Visiting waterside bars and restaurants Hunting

G. Other ____

Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
Where do you keep your boat during the summer
 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water I have a home in the Delta with an attached dock where I keep my boat
If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E I have a home in the Delta with an attached dock where I keep my boat
If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C Yes, bait or fishing supplies D. Yes, other items E. No
Name of Marinas: 1) Sug Harbor 2)

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones			
before reaching fast		\mathbb{X}	
water			
Nearby waterside bars			
and restaurants	<u> </u>		
Turbid/muddy water			×
Heavy barge/boat			
traffic		,	X
Excellent	. /		
birdwatching	X		
Loud noise (traffic,			• /
construction, etc.)			\times
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - (E) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
 - The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- , E. I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. B.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- I would be somewhat less likely to visit the Clarksburg Marina. D,
- I would be much less likely to visit the Clarksburg Marina. E.
- I am sure I would not visit the Clarksburg Marina during the construction project. F.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company.
- (\overline{fl}) I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1–5 times. A.
- Yes 6–10 times В.
- C. Yes 11–20 times
- Yes more than 20 times D.
- (E)No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area. Q.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey there are changes to the proposed project later?	if
Prefer not to give contact info:	
Name:	
Address:	
Phone:	
Email:	

Survey	taker number:	16		16-4	
am wor boating during WaterF	king on this project activities in the Del construction of the p ix project. Your res e to complete our su	as a part of my studie Ita and to measure any proposed Twin Tunne sponses will only be re rvey? me general information	s. The purpose of the changes in recreation Project, sometimes eported in aggregate.	is survey is to and on and visitation to called the BDCP Can you take ab	aryze recreational that might occur or California bout fifteen minutes
Own: Rent:	you own a boat or o Yes Yes o both rent and ow	lo you rent a housebook No No No n then end survey.	at or other type of bo	at to go boating?	
2. WI	nich best describes y	our boat or boats (sel	ect all that apply)?		
E. F. G. H. I. J. K. L.	Other:	er non-motorized boat — any times per year do		or recreational bo	pating?
A.	I do not go boating 1–5	in the Delta.	•		
C. D. E.	6–10				
If	Answer to 3 is A, th	hen end survey.			
4. WA B. C. D. B. F.	Fishing Wake boarding Water Skiing Cruising	ting activities do you bars and restaurants	usually undertake (se	elect all that apply	y)?
G	Other				

5. Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area
D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6. Where do you keep your boat during the summer
A. Away from the Delta in dry storage or at my residence.
B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water
In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7. If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8. Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water I have a home in the Delta with an attached dock where I keep my boat
9. If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, ar other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
Name of Marinas: 1) Dolta Marina - Rio Vista
2) Walnut Grove
3) Bethel Island

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5		de de la constante de la const	
mph speed zones			·
before reaching fast		, X	
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat		\ \ \ \ \	
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project.
 - The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
 - B. I would be much more likely to visit the Hood Supply Company.
 - C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
 - D. I would be somewhat less likely to visit the Hood Supply Company.
 - E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- Yes more than 20 times No.
 - Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
 - A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.

 I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up there are changes to the proposed project later?	survey if
Prefer not to give contact info: or	
Name:	
Address:	
Phone:	
Email:	

Survey taker number:	10-5
Hi, my name is I am a student at to am working on this project as a part of my studies. The purposating activities in the Delta and to measure any changes in during construction of the proposed Twin Tunnel Project, so WaterFix project. Your responses will only be reported in a with me to complete our survey? First, I would like to get some general information about you	pose of this survey is to analyze recreational recreation and visitation that might occur ometimes called the BDCP or California aggregate. Can you take about fifteen minutes
1. Do you own a boat or do you rent a houseboat or other to Own: No No Rent: Yes No If No to both rent and own then end survey.	type of boat to go boating?
2. Which best describes your boat or boats (select all that a	apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the	ne Delta for recreational boating?
A. I do not go boating in the Delta. B. 1–5	
C. 6-10 D. 11-15 E. 15-20 F.3 More than 20 If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you usually under A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting G. Other 	ertake (select all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items D. No
11	If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1)
	2)
	3)

Condition	More Likely /	No Change	Less Likely
Excellent fishing	<u> </u>		
Long or frequent 5	/ \		
mph speed zones			
before reaching fast			
water			
Nearby waterside bars	1/		
and restaurants	Χ		
Turbid/muddy water		<u> </u>	
Heavy barge/boat			
traffic			
Excellent		52	
birdwatching		<u>X</u>	
Loud noise (traffic,		l ŽŽ	
construction, etc.)			
High winds		<u> </u>	

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

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The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - No change in location of my boating activity.

 I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

I would be somewhat likely to boat more often in areas where barges create muddy conditions.

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DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

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- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E l would be much less likely to visit the Clarksburg area.
 - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
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- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
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 - I would be much less likely to visit the Clarksburg Marina.
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- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
 - It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	16	160-60
am working on this project a boating activities in the Delt during construction of the pr WaterFix project. Your resp with me to complete our surfirst, I would like to get som 1. Do you own a boat or do Own: Yes Rent: Yes	s a part of my studies. a and to measure any chapposed Twin Tunnel Pronses will only be repovey? be general information and you rent a houseboat of No	dent at the University of California at Santa Cruz. I The purpose of this survey is to analyze recreational anges in recreation and visitation that might occur oject, sometimes called the BDCP or California rted in aggregate. Can you take about fifteen minutes bout your recreational boating activities. r other type of boat to go boating?
If No to both rent and own	then end survey.	
2. Which best describes yo	ur boat or boats (select a	all that apply)?
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other M. Other:		visit the Delta for requestional heating?
 Approximately how man A. I do not go boating in B. 1–5 C. 6–10 D. 11–15 E. 15–20 F) More than 20 		visit the Delta for recreational boating?
If Answer to 3 is A, then	n end survey.	
4. What recreational boating Fishing B. Wake boarding C. D. Cruising F. Visiting waterside ba F. Hunting G. Other		ly undertake (select all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
ļ	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10.	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies Yes, other items E. No
11.	If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) B + W
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			,
and restaurants	XX		
Turbid/muddy water			X
Heavy barge/boat			
traffic			
Excellent			
birdwatching		<u> </u>	/
Loud noise (traffic,			
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described aboye?
 - No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- G. B. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
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Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

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- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
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- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.

 E. I would be much less likely to visit the Clarksburg area.
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- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- Yes more than 20 times
- Ĕ. No
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
 - It is somewhat unlikely that I will use the area.
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Prefer not to give contact info: or
Name:
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Email:

Survey ta	aker number:	16		6-	1
am worki boating aduring co WaterFix with me t	ng on this project a ctivities in the Delta instruction of the pr project. Your resp to complete our surv	. I am a stud s a part of my studies. T a and to measure any cha oposed Twin Tunnel Pro conses will only be repor- vey? te general information ab	The purpose of this sanges in recreation a ject, sometimes call ted in aggregate. Ca	urvey is to a and visitation led the BDC an you take	analyze recreational in that might occur CP or California about fifteen minutes
Own: X Rent: Y		you rent a houseboat or No No then end survey.	other type of boat t	o go boatinş	g?
A. C B. V C. S D. R E. P F. H G. D H. J. I. B J. P K. S L. K	Cabin cruiser Vakeboard boat Ski boat Cunabout Pontoon boat House boat Day boat et Boat Big Cat Performance boat	ur boat or boats (select a non-motorized boat	ll that apply)?		
A. I d B. 1 C. 6 D. 1 E. 1	lo not go boating in -5		visit the Delta for re	ecreational l	boating?
C. V D. C. V E. V	Pishing Wake boarding Water Skiing Cruising Visiting waterside b Hunting	ng activities do you usual	ly undertake (select	all that app	oly)?

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6.	Where do you keep your boat during the summer
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

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Long or frequent 5			•
mph speed zones			
before reaching fast			
water			
Nearby waterside bars		1	
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			X
birdwatching			
Loud noise (traffic,			\backslash
construction, etc.)			
High winds			

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Yes No

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 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - (A) No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
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- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

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- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
 - I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- 1 would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina.
- I would be much less likely to visit the Clarksburg Marina.
- I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company.
- D. E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. Α.
- Yes 6–10 times В.
- Yes 11-20 times C.
- Yes more than 20 times
- No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. Α.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey there are changes to the proposed project later?	if
Prefer not to give contact info: or	
Name:	
Address:	
Phone:	
Email:	

Survey taker number:_	(6		(a-8
boating activities in the I during construction of the WaterFix project. Your with me to complete our	Delta and to measure e proposed Twin Tu responses will only b survey?	e any changes in recreation innel Project, sometimes ca	ty of California at Santa Cruz. I survey is to analyze recreationa and visitation that might occur lled the BDCP or California can you take about fifteen minut hal boating activities.
Do you own a boat o Own: Yes Rent: Yes If No to both rent and o	No No	seboat or other type of boat	to go boating?
A Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Ot M. Other:	it her non-motorized t		
3. Approximately how A. I do not go boatin (B) 1-5 C. 6-10 D. 11-15 E. 15-20 F. More than 20 If Answer to 3 is A,	g in the Delta.	r do you visit the Delta for i	ecreational boating?
(A). Fishing B. Wake boarding C. Water Skiing (D) Cruising	eating activities do y	ou usually undertake (selec	t all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
(A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Delta
	2) B+ W
	3) Walnut Grave

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	X,		
Long or frequent 5			
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			
construction, etc.)			
High winds			X

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - (D) I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- B. I would be somewhat likely to avoid areas where barges create muddy conditions.
- (C.) I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- I have no reaction one way or the other.

 I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- E. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - (E) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area.
- I would be somewhat less likely to visit the Clarksburg area.
- I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project. F.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker numl	ber:(16-9
am working on this boating activities in during construction WaterFix project. Ywith me to complete	project as a part of my stu the Delta and to measure of the proposed Twin Tur Your responses will only be our survey?	idies. The purpose of this su any changes in recreation ar anel Project, sometimes calle	n you take about fifteen minutes
Own: (Yes) Rent: Yes	ooat or do you rent a house No No No and own then end survey	eboat or other type of boat to	go boating?
2. Which best desc	cribes your boat or boats (select all that apply)?	
A. Cabin cruise B. Wakeboard C. Ski boat D. Runabout E. Pontoon boat G. Day boat H. Jet Boat I. Big Cat J. Performanc K. Sail boat M. Other:	boat at se boat oe/Other non-motorized be	oat	
	poating in the Delta.	do you visit the Delta for red	reational boating?
If Answer to 3	is A, then end survey.		
A. Fishing B. Wake board C. Water Skiir D. Cruising E. Visiting wa	ding ng iterside bars and restaurant	ou usually undertake (select a	all that apply)?
O Other	a 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
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6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1) Moures River Boot
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5		,	
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants	<u> </u>		/
Turbid/muddy water			95
Heavy barge/boat			
traffic			/\
Excellent			ī.
birdwatching			//
Loud noise (traffic,			<u> </u>
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

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The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
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 - E. I will stop boating in the Delta altogether.
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 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
- B. I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
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To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, buildozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
 - l am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E. I would be much less likely to visit the Clarksburg Marina.
- (F.) I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- P. Yes more than 20 times
- E.) No
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.

 I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not	to give contact info:		
or	<u> </u>		
Name: Z	to give contact info: WALT STANISH 167 MAIN STREET	Rio Vista, CA.	9457/
Address:	10+ /11.11	e v	
Phone:	707-374-17011 MATMOSPICKE HOLI	Com	
	11/19/11/19 P/(KC/100)		

Survey taker number:	6		16-10
Hi, my name is am working on this project as boating activities in the Delta during construction of the project. Your respo with me to complete our surve First, I would like to get some	a part of my studies. ' and to measure any ch posed Twin Tunnel Pr nses will only be repo sy?	The purpose of this survey is anges in recreation and visit oject, sometimes called the street in aggregate. Can you	s to analyze recreational tation that might occur BDCP or California take about fifteen minutes
1. Do you own a boat or do y Own: Yes Rent: Yes If No to both rent and own t	No (No	r other type of boat to go bo	eating?
2. Which best describes you	boat or boats (select	all that apply)?	
A. Cabin cruiser (B.) Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other m. M. Other:		which the Dalta for vocanti	anal hoating?
3. Approximately how many A. I do not go boating in	times per year do you he Delta.	u visit the Delta for recreation	onal boating?
(B.) 1–5 C. 6–10			
D. 11–15 E. 15–20			
F. More than 20			
If Answer to 3 is A, then	end survey.		
 What recreational boating A. Fishing 	gactivities do you usus	ally undertake (select all tha	t apply)?
(B) Wake boarding			
C. Water Skiing D Cruising			
E. Visiting waterside baF. Hunting	rs and restaurants		
G. Other			

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B)North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D)Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence In the Delta in dry storage or at my residence out of the water In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	No. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
1	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) Bethel 45 and 2) B & W
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing	X		
Long or frequent 5	,		
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants	X		——
Turbid/muddy water			
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			\setminus
construction, etc.)			
High winds			LX

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

Yes No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall

 - B. Some reduction in frequency of boating activity in the Delta overall
 Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - (E.) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.

E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - E) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. Α.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area. C.
- I would be somewhat less likely to visit the Clarksburg area. (D)>
- I would be much less likely to visit the Clarksburg area. Ε.
- I am sure that I would not visit the Clarksburg area at all during the construction project. F.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
 - E. I would be much less likely to visit the Clarksburg Marina.
 - F. I am sure I would not visit the Clarksburg Marina during the construction project.
 - The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
 - A. I would be somewhat more likely to visit the Hood Supply Company.
 - B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- I would be somewhat less likely to visit the Hood Supply Company.
- E. I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:
Hi, my name is I am a student at the University of California at Santa Cruz. I am working on this project as a part of my studies. The purpose of this survey is to analyze recreational poating activities in the Delta and to measure any changes in recreation and visitation that might occur during construction of the proposed Twin Tunnel Project, sometimes called the BDCP or California WaterFix project. Your responses will only be reported in aggregate. Can you take about fifteen minutes with me to complete our survey? First, I would like to get some general information about your recreational boating activities.
I. Do you own a boat or do you rent a houseboat or other type of boat to go boating? Own: Yes No If No to both rent and own then end survey.
2. Which best describes your boat or boats (select all that apply)?
A. Cabin cruiser B. Wakeboard boat Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other:
 Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta.
B. 1-5 (C) 6-10
D. 11–15
E. 15–20 F. More than 20
If Answer to 3 is A, then end survey.
 What recreational boating activities do you usually undertake (select all that apply)? Fishing B. Wake boarding Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting G. Other

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	West Delta around Antioch Suisun Marsh area B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	Away from the Delta in dry storage or at my residence. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. Yes, Gas Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1) Control bout Shops 2)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			\$\$W_
Long or frequent 5			
mph speed zones			* /
before reaching fast			X
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water		×	
Heavy barge/boat			
traffic			<u> </u>
Excellent	1 /		
birdwatching	X		
Loud noise (traffic,			
construction, etc.)			X
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - (E.) I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - (E) I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions. В.
- I would be very likely to avoid areas where barges create muddy conditions. C.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D. E)
- I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?



I have no reaction one way or the other.

I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general E. impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
 - I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- Е. (F) I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. E.
- I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times.
- Yes 6-10 times
- Yes 11-20 times C.
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area.
- Œ) I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Name: Tracy Or with Address: I sletten & East Bay area

Phone:

yene taglia e hotmal. Con

Survey taker number: 10		16-13
am working on this project as a par boating activities in the Delta and t during construction of the proposed WaterFix project. Your responses with me to complete our survey?	I am a student at the University of Cat of my studies. The purpose of this survey o measure any changes in recreation and visit Twin Tunnel Project, sometimes called the will only be reported in aggregate. Can your recreational boars	is to analyze recreational sitation that might occur e BDCP or California at take about fifteen minutes
1. Do you own a boat or do you ro Own: Yes No Rent: Yes No If No to both rent and own then e	>	oating?
2. Which best describes your boar	t or boats (select all that apply)?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-m M. Other:		
3. Approximately how many time A. I do not go boating in the D. B. 1–5 C. 6–10 D. 11–15	es per year do you visit the Delta for recreati elta.	ional boating?
E. 15–20		
F. More than 20 If Answer to 3 is A, then end	survey.	
 4. What recreational boating actives A. Fishing B. Wake boarding C. Water Skiing Cruising E. Visiting waterside bars and F. Hunting G. Other 	vities do you usually undertake (select all th	at apply)?

5.		ing areas of the Delta best describes the areas of the Delta that you use for these es (circle all that apply)?
	B North Delta arou C. South Delta arou D Central Delta arou	
6.	Where do you keep	your boat during the summer
	B. Away from theC. In the Delta in aD. In the Delta in a	Delta in dry storage or at my residence. Delta in a slip in the water lry storage or at my residence out of the water a slip in the water a the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A	or B, what is the zip code where you keep your boat during summer?
8 <i>.</i>	A. Away from the B Away from the C. In the Delta in a D. In the Delta in a L. I have a home i	your boat in the off season? Delta in a slip in the water Delta in dry storage or at my residence dry storage or at my residence out of the water a slip in the water In the Delta with an attached dock where I keep my boat A or B, what is the zip code where you keep your boat during the off season?
э.	Ti the answer to 0 is	-
10	or other items from A. Yes, Gas B. Yes, Food and C. Yes, bait or fish D. Yes, other item E) No	ning supplies
11	I. If answer to 10 is A	, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas:	1)
		2)
		3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5 mph speed zones before reaching fast water	A Company of the Comp		X
Nearby waterside bars and restaurants		X	
Turbid/muddy water		X	
Heavy barge/boat traffic		X	-
Excellent birdwatching	X		
Loud noise (traffic, construction, etc.)			<u> </u>
High winds			<u> </u>

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - Some reduction in frequency of boating activity in the Delta overall
 - C. Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- (B.) I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E.) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

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- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.

 I would be much less likely to visit the Clarksburg area.
- F. I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
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- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A Y
 - Yes 1-5 times.
 - Yes 6-10 times
 - C. Yes 11–20 times
- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?

Prefer not to give contact info:

Address:

Peanette Williams
112 5 4th Street
12:0 Vista, CA 9457/
Williamiacitlink. Met Phone: Email:

Hi, my name is	Survey taker number: (()	16-14
Own: Yes No Rent: Yes No If No to both rent and own then end survey. 2. Which best describes your boat or boats (select all that apply)? A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1–5 C. 6–10 D. 11–15 E. 15–20 D. More than 20 If Answer to 3 is A, then end survey. 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting	am working on this project as a part of my studies. The purposed to boating activities in the Delta and to measure any changes in a during construction of the proposed Twin Tunnel Project, son WaterFix project. Your responses will only be reported in ag with me to complete our survey?	ose of this survey is to analyze recreation recreation and visitation that might occur netimes called the BDCP or California gregate. Can you take about fifteen minimum.
Own: Yes No Rent: Yes No If No to both rent and own then end survey. 2. Which best describes your boat or boats (select all that apply)? A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreational boating? A. I do not go boating in the Delta. B. 1–5 C. 6–10 D. 11–15 E. 15–20 D. More than 20 If Answer to 3 is A, then end survey. 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting	1. Do xou own a hoat or do you rent a househoat or other ty	ne of boat to go boating?
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If Answer to 3 is A, then end survey. 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing C. Truising E. Visiting waterside bars and restaurants F. Hunting		
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 4. What recreational boating activities do you usually undertake (select all that apply)? A. Fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting 	(P.) More than 20	
A. Fishing B. Wake boarding C. Water Skiing D Cruising E. Visiting waterside bars and restaurants F. Hunting	If Answer to 3 is A, then end survey.	
A. Fishing B. Wake boarding C. Water Skiing D Cruising E. Visiting waterside bars and restaurants F. Hunting		
C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants F. Hunting	(A.) Fishing	rtake (select all that apply)?
D Cruising E. Visiting waterside bars and restaurants F. Hunting		
E. Visiting waterside bars and restaurants F. Hunting		
F. Hunting	U) Cruising	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
•	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	 A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas B. Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1) \(\frac{1}{1} \) \(\frac{1} \) \(\frac{1}{1} \) \(\frac{1} \)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing			
Long or frequent 5	,		
mph speed zones			
before reaching fast			
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water			
Heavy barge/boat			
traffic			<u> </u>
Excellent			`
birdwatching	<u> </u>		
Loud noise (traffic,			\ \
construction, etc.)			<u>/></u>
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - (C) Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - (D.) I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.
- (B.) I would be somewhat likely to avoid areas where barges create muddy conditions.
- C. I would be very likely to avoid areas where barges create muddy conditions.
- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- 17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?
- A. I have no reaction one way or the other.
- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
- (E.) I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.

Thank you for those responses. Now have a question about whether the tunnel construction activities that will take place on land might affect your boating activities.

To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - (E.) Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
 - 2. I would be somewhat less likely to visit the Clarksburg area.
 - I would be much less likely to visit the Clarksburg area.
 - I am sure that I would not visit the Clarksburg area at all during the construction project.

- 20. The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- A. I would be somewhat more likely to visit the Clarksburg Marina.
- B. I would be much more likely to visit the Clarksburg Marina.
- C. The construction would not effect the likelihood of me visiting the Clarksburg Marina.
- D. I would be somewhat less likely to visit the Clarksburg Marina.
- E) I would be much less likely to visit the Clarksburg Marina.
- F. I am sure I would not visit the Clarksburg Marina during the construction project.
- 21. The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- A. I would be somewhat more likely to visit the Hood Supply Company.
- B. I would be much more likely to visit the Hood Supply Company.
- C. The construction would not effect the likelihood of me visiting the Hood Supply Company.
- D. I would be somewhat less likely to visit the Hood Supply Company.
- E.) I would be much less likely to visit the Hood Supply Company.
- F. I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- 22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?
- A. Yes 1–5 times.
- B. Yes 6–10 times
- C. Yes 11–20 times

No.

- D. Yes more than 20 times
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- It is somewhat unlikely that I will use the area.
- (D.) It is very unlikely that I will use the area.
- E. I am sure that I will not use the area once tunnel construction begins.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Surv	vey taker number:_	16		16-15
boat duri Wat	ing activities in the Ing construction of the erFix project. Your	Delta and to measure the proposed Twin Turesponses will only be	any changes in recreation	ity of California at Santa Cruz. I survey is to analyze recreational and visitation that might occur alled the BDCP or California Can you take about fifteen minutes and boating activities.
Ow Ren	n: (Yes) t: Yes	or do you rent a hous No No own then end surve	eboat or other type of boar y.	t to go boating?
2.	Which best describe	s your boat or boats	(select all that apply)?	
	M. Other:	oat Other non-motorized		
3.	A. I do not go boat B. 1-5 C. 6-10 D. 11-15	v many times per yea ing in the Delta.	ar do you visit the Delta fo	or recreational boating?
	É. 15–20 F. More than 20			
	If Answer to 3 is	A, then end survey.		
4.	A. FishingB. Wake boardinC. Water SkiingD. Cruising		you usually undertake (se	lect all that apply)?

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area (B) North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water I have a home in the Delta with an attached dock where I keep my boat A start B what is the zip code where you keep your boat during the off season?
1	 0. When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A. Yes, Gas Yes, Food and beverages C. Yes, bait or fishing supplies D. Yes, other items E. No
,	1. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at?
	Name of Marinas: 1) $B + W$
	2)
	3)

Condition	More Likely	No Change	Less Likely
Excellent fishing		7	
Long or frequent 5			٠,
mph speed zones			
before reaching fast			
water		long.	
Nearby waterside bars			
and restaurants			~
Turbid/muddy water			
Heavy barge/boat			\downarrow
traffic			
Excellent		X	
birdwatching			
Loud noise (traffic,			\times
construction, etc.)			
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

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There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

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Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - Significant reduction in frequency of boating activity in the Delta overall D. Increase in frequency of boating activity in the Delta overall.

 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B. I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - (C) I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- Which of the following best describes your reaction to the potential for an increase muddy water 16. along barge routes?
- This is not a concern for me. A.
- I would be somewhat likely to avoid areas where barges create muddy conditions.
- I would be very likely to avoid areas where barges create muddy conditions.
- I would be somewhat likely to boat more often in areas where barges create muddy conditions. D.
- I would be very likely to boat more often in areas where barges create muddy conditions. E.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

- Which of the following best describes your reaction to DWR's intention to implement a barge 17. operations plan?
- I have no reaction one way or the other. A.
- I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and В. general impacts to recreation.
- I am very confident that DWR will make a good faith effort to reduce muddy water and general C. impacts to recreation.
- I somewhat confident that DWR will not make a good faith effort to reduce muddy water and D. general impacts to recreation. HOW
- I am very confident that DWR will make a good faith effort to reduce muddy water and general Ēλ impacts to recreation.

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To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

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Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - D. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- Once construction of the intakes begins in the Clarksburg area, which best describes your 19. response?
- I would be somewhat more likely to visit the Clarksburg area. A.
- I would be much more likely to visit the Clarksburg area. В.
- The construction would not affect the likelihood of me visiting the Clarksburg area. Ċ.
- I would be somewhat less likely to visit the Clarksburg area. D.
- I would be much less likely to visit the Clarksburg area.
- E. F) I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on 20. the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. A.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina. E.
- I am sure I would not visit the Clarksburg Marina during the construction project. (F.)
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply 21. Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. В.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company.
 - I am sure I would not visit the Hood Supply Company during the construction project.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times.
- Yes 6-10 times
- Yes 11-20 times
- Yes more than 20 times D.
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area.
- It is very unlikely that I will use the area. D.
- I am sure that I will not use the area once tunnel construction begins. Ε.

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Survey taker number:	16-16
Hi, my name is I am a student at the University of Califam working on this project as a part of my studies. The purpose of this survey is to boating activities in the Delta and to measure any changes in recreation and visitated during construction of the proposed Twin Tunnel Project, sometimes called the Bl WaterFix project. Your responses will only be reported in aggregate. Can you talwith me to complete our survey? First, I would like to get some general information about your recreational boating	to analyze recreational tion that might occur DCP or California ke about fifteen minutes
1. Do you own a boat or do you rent a houseboat or other type of boat to go boat Own: Yes No Rent: Yes No If No to both rent and own then end survey.	ting?
2. Which best describes your boat or boats (select all that apply)?	
 A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Other non-motorized boat M. Other: 3. Approximately how many times per year do you visit the Delta for recreations 	al boating?
A. I do not go boating in the Delta. B. 1–5 C. 6–10 D. 11–15 E. 15–20 More than 20	
If Answer to 3 is A, then end survey.	
 4. What recreational boating activities do you usually undertake (select all that a fishing B. Wake boarding C. Water Skiing D. Cruising E. Visiting waterside bars and restaurants 	apply)?
F. Hunting G. Other	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A. West Delta around Antioch Suisun Marsh area B. North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area C. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
9.	If the answer to 8 is A or B, what is the zip code where you keep your boat during the off season?
10	When you visit the Delta, do you make purchases of gas, food and beverages, bait or fishing supplies, or other items from Delta marinas? Circle all that apply. A Yes, Gas Yes, Food and beverages Yes, bait or fishing supplies D. Yes, other items E. No
11	. If answer to 10 is A, B, C, or D, then: Which marina or marinas do you most often make purchases at? Name of Marinas: 1) 13 + W
	2)
	3)

12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
Excellent fishing	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
Long or frequent 5		<u> </u>	
mph speed zones			
before reaching fast		X	
water			
Nearby waterside bars			
and restaurants	/2		\
Turbid/muddy water			"
Heavy barge/boat			.
traffic			
Excellent			N
birdwatching		~	- 10
Loud noise (traffic,			
construction, etc.)			A
High winds			

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?



No

This map shows the tunnel construction project. The plan is to build three new intakes to divert water from the Sacramento River near the town of Hood, just downstream from Sacramento. The water diverted at Hood will be conveyed through twin forty foot diameter tunnels buried 150 feet underground beneath Delta islands and sloughs. The water will then be sent south to irrigate Central Valley farms and supply Southern California cities.

This map shows the route the tunnels will take. This is a picture of a tunnel boring machine similar to ones that will be used on the project. Shafts will be excavated down to the tunnels to supply the tunnel boring operations and barges will carry materials, supplies and equipment to be lowered down the shafts.

The tunnel boring machines will produce about 30,000,000 cubic yards of excavated material. The excavated material will be a combination of mud, peat soil, and liquids used to lubricate the cutting heads of the boring machine. A dump truck like the one in this picture holds about 12 cubic yards so that is equal to about two and half million truck loads of excavated material. The excavated material will be hauled up the shafts and loaded onto barges. The barges will then take the material to deposit sites on Delta Islands. This map shows the location of eight new barge landings that will be constructed and the locations where the excavated materials will be deposited. This is a picture of a tugboat and barge similar to the ones that will be used on the tunnel project. The map also shows the routes that barges will take to deliver materials and equipment and to haul away excavated tunnel material.

The California Department of Water Resources produced an Environmental Impact Report (EIR) on the tunnel project. The EIR considered the impacts of the project on recreation and concluded as follows:

"Construction of ... intakes and water conveyance facilities would result in disruption to recreational opportunities. Indirect effects on recreation experiences may occur as a result of impaired access, construction noise, or negative visual effects associated with construction. Overall, construction and geotechnical exploration may occur year-round and last from 2.5 to 13.5 years at individual construction sites near recreation sites or areas and in-river construction would be primarily limited to June 1 through October 31 each year, which would result in a long-term reduction of recreational opportunities or experiences."

There will also be two drilling barges that will drill into the river bottom to test the soil conditions along the tunnel route. The drilling will occur at between 90 and 100 sites on Delta waterways. Overwater drilling will occur 6 days per week in the summer and fall months for about three years. This is a map that shows the locations of the drilling, both on land and in the water.

The use of barges for water facilities construction, overwater drilling, and construction of the temporary barge unloading facilities may require partial channel closures and will require use of equipment within the waterways. Temporary in-water construction zone restrictions would be put in place around barges and barge facilities, including 5-mph speed-restricted zones extending upstream and downstream of construction within the waterway and extending upstream and downstream of barge facilities to reduce wake and maintain a safe work area in the vicinity of the construction activities.

Within the speed-restricted zones high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated.

- 14. Once the tunnel construction project begins, which of the following best describes the likely change in the frequency of your boating activity in the Delta overall in response to the construction described above?
 - A. No change in frequency of boating activity in the Delta overall
 - B. Some reduction in frequency of boating activity in the Delta overall
 - O Significant reduction in frequency of boating activity in the Delta overall
 - D. Increase in frequency of boating activity in the Delta overall.
 - E. I will stop boating in the Delta altogether.
- 15. Once tunnel construction begins, which of the following best describes the likely change in the location of your boating activity?
 - A. No change in location of my boating activity.
 - B) I would change the location of my boating within the Delta to avoid construction activity but would not switch to boat at locations other than the Delta.
 - C. I would occasionally avoid the Delta by switching to boat at locations other than the Delta.
 - D. I would often avoid the Delta by switching to boat at locations other than the Delta.
 - E. I would always avoid the Delta by switching to boat at locations other than the Delta.

The tug boats that will be used to push barges for this project have the potential for bottom scour from propeller wash. This may cause an increase in muddy water along the barge routes.

- 16. Which of the following best describes your reaction to the potential for an increase muddy water along barge routes?
- A. This is not a concern for me.

B. I would be somewhat likely to avoid areas where barges create muddy conditions.

I would be very likely to avoid areas where barges create muddy conditions.

- D. I would be somewhat likely to boat more often in areas where barges create muddy conditions.
- E. I would be very likely to boat more often in areas where barges create muddy conditions.

DWR says that they will implement a barge operations plan and use their best efforts to reduce or avoid any increases in muddy water from barge operations and to reduce or avoid barge impacts to recreation in general.

17. Which of the following best describes your reaction to DWR's intention to implement a barge operations plan?

A. I have no reaction one way or the other.

- B. I am somewhat confidence that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- C. I am very confident that DWR will make a good faith effort to reduce muddy water and general impacts to recreation.
- D. I somewhat confident that DWR will not make a good faith effort to reduce muddy water and general impacts to recreation.
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To facilitate tunnel construction, there will be a new concrete batch plant, excavated material site, and other construction related facilities on Bouldin Island. A new road will be built to connect the construction facility to Highway 12 midway between the Terminous Bridge and the bridge at the B & W Resort. Construction trucks will travel on Highway 12 and turn onto the new road to reach the Bouldin Island construction area. The new turnout on Highway 12 and new road are shown here on this map.

It is estimated that there will be 41% more traffic crossing the Rio Vista Bridge over the Sacramento River during the construction period because of truck and car trips generated by the tunnel project.

The barges and tug boats used for tunnel construction will pass beneath 2 drawbridges on State Highway 12 (here and here) and beneath other Delta drawbridges. Each time a barge passes, the drawbridges will be opened and road traffic will be stopped until the barge clears.

Construction trucks will also use other roadways in various locations throughout the Delta.

- 18. Which of the following best describes your response to construction vehicles using Delta roadways and bridge openings for barge traffic?
 - A. Construction vehicles and bridge openings will not affect my use of the Delta for recreation.
 - B. Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat more often.
 - C. Construction vehicles and bridge openings will cause me to use the Delta for recreation much more often.
 - Construction vehicles and bridge openings will cause me to use the Delta for recreation somewhat less often.
 - E. Construction vehicles and bridge openings will cause me to use the Delta for recreation much less often.
 - F. Construction vehicles and bridge openings will cause me to stop using the Delta for recreation altogether.

Thank you. I have two questions about how tunnel construction activity might affect your likelihood of visiting the Hood and Clarksburg area. The three intakes that will divert water from the Sacramento River into the tunnels will be built in this area.

This is a map showing construction of the three intakes, which will be located along a six mile stretch of the Sacramento River between Freeport and Courtland. These intake structures are each about 3/4 of a mile long. To build each intake structure, highway 160 will be moved inland away from the river to allow room for the structure, the area will be excavated, and concrete structures will be built. Construction equipment in use will include dump trucks, excavators, bulldozers, and rock drills. Explosive blasting may be used at excavation sites. Helicopter over-flights would occur in connection with installation of new power lines at this area.

To build the in-water portion of these structures, barge-mounted pile drivers will drive foundation piles into the river bottom. There will be about 8,000 piles in all. The pile driving will take place each summer for six years. Four or more pile drivers will be working at the same time. Each time a pile driver strikes a pile, it will produce a sound of 102 decibels or more. 100 decibels is about as loud as your car stereo turned up to full volume. There will be a total of 8,000,000 individual pile strikes.

- 19. Once construction of the intakes begins in the Clarksburg area, which best describes your response?
- A. I would be somewhat more likely to visit the Clarksburg area.
- B. I would be much more likely to visit the Clarksburg area.
- C. The construction would not affect the likelihood of me visiting the Clarksburg area.
- D. I would be somewhat less likely to visit the Clarksburg area.
- E. I would be much less likely to visit the Clarksburg area.
- I am sure that I would not visit the Clarksburg area at all during the construction project.

- The Clarksburg Marina is located across the river and a little over a quarter of a mile from the 20. intake construction site, in view of the pile-driving activities. The Clarksburg Marina is here on the map. Which of the following best describes your response with regard to the Clarksburg Marina once intake construction begins?
- I would be somewhat more likely to visit the Clarksburg Marina. Α.
- I would be much more likely to visit the Clarksburg Marina. В.
- The construction would not effect the likelihood of me visiting the Clarksburg Marina. C.
- I would be somewhat less likely to visit the Clarksburg Marina. D.
- I would be much less likely to visit the Clarksburg Marina.
- E. I am sure I would not visit the Clarksburg Marina during the construction project.
- The Hood Supply Company is a bar and grill located next to the intake construction site. Heavy 21. construction trucks and equipment will pass within 100 feet of the restaurant. The Hood Supply Company has both indoor and outdoor seating. Which of the following best describes your response with regard to the Hood Supply Company once intake construction begins?
- I would be somewhat more likely to visit the Hood Supply Company. A.
- I would be much more likely to visit the Hood Supply Company. B.
- The construction would not effect the likelihood of me visiting the Hood Supply Company. C.
- I would be somewhat less likely to visit the Hood Supply Company. D.
- I would be much less likely to visit the Hood Supply Company. Ŧ,
- I am sure I would not visit the Hood Supply Company during the construction project. F.

Thank you. I have two final questions about how tunnel construction activities might affect your likelihood of visiting the Meadows Slough / Upper Snodgrass Slough anchorage area. The Meadows Slough is shown here on the map. Construction activities and barge routes near the Meadows Slough are also shown on the map.

- Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so 22. how often?
- Yes 1-5 times. Α.
- Yes 6–10 times В.
- Yes 11-20 times C.
- Yes more than 20 times D.
- (E) No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows 23. Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- It is somewhat likely that I will use the area. A.
- It is very likely that I will use the area. В.
- It is somewhat unlikely that I will use the area. C.
- It is very unlikely that I will use the area.
 - I am sure that I will not use the area once tunnel construction begins.

there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email:

Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if

Survey taker number:_	VB 16			}
am working on this proje boating activities in the D during construction of the WaterFix project. Your in with me to complete our	. I am a struct as a part of my studies. Delta and to measure any common tender of the proposed Twin Tunnel Presponses will only be represented to the proposed tender of the proposed	The purpose of this surve hanges in recreation and project, sometimes called orted in aggregate. Can	vey is to analyze recreated visitation that might occurrence the BDCP or California you take about fifteen mi	onai ur
1. Do you own a boat of Own: Yes Rent: Yes If No to both rent and o	r do you rent a houseboat No No wn then end survey.	or other type of boat to g	go boating?	
A. Cabin cruiser B. Wakeboard boat C. Ski boat D. Runabout E. Pontoon boat F. House boat G. Day boat H. Jet Boat I. Big Cat J. Performance boat K. Sail boat L. Kayak/Canoe/Ot M. Other:	nt her non-motorized boat		postional hosting?	
3. Approximately how a A. I do not go boatin B. 1–5 C. 6–10 D. 11–15 E. 15–20 More than 20 If Answer to 3 is A,		ou visit the Delta for recr	eational boating!	
A. Fishing B. Wake boarding C. Water Skiing Cruising	nating activities do you usu	ually undertake (select al	l that apply)?	

5.	Which of the following areas of the Delta best describes the areas of the Delta that you use for these recreational activities (circle all that apply)?
	A West Delta around Antioch Suisun Marsh area B North Delta around Rio Vista, Walnut Grove, Steamboat Slough area C. South Delta around Discovery Bay area D. Central Delta around Korth's Pirate's Lair, Bethel Island, Franks Tract area E. Clarksburg, Hood, Walnut Grove, Locke area. F. Stockton, Windmill Cove area G. Other
6.	Where do you keep your boat during the summer
	 A. Away from the Delta in dry storage or at my residence. B. Away from the Delta in a slip in the water C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
7.	If answer to 6 is A or B, what is the zip code where you keep your boat during summer?
8.	Where do you keep your boat in the off season? A. Away from the Delta in a slip in the water B. Away from the Delta in dry storage or at my residence C. In the Delta in dry storage or at my residence out of the water D. In the Delta in a slip in the water E. I have a home in the Delta with an attached dock where I keep my boat
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12. In the table below is a list of conditions that you might encounter on different sloughs while boating. For each of these conditions, please indicate how they would affect the likelihood that you would do your recreational boating on those sloughs.

Condition	More Likely	No Change	Less Likely
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mph speed zones		V)	
before reaching fast			i.
water			
Nearby waterside bars			
and restaurants			
Turbid/muddy water	Ba		
Heavy barge/boat			
traffic			
Excellent			
birdwatching			
Loud noise (traffic,			ΙX
construction, etc.)			
High winds			X

13. Have you heard about the plan to construct tunnels on the Sacramento River to divert water to the Central Valley farms and Southern California cities?

(Yes) No

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22. Have you ever visited the Meadows Slough / Upper Snodgrass Slough anchorage area, and if so how often?



Yes 1–5 times.

Yes 6-10 times

Yes 11-20 times

- D. Yes more than 20 times
- E. No.
- Once tunnel construction activities begin, how likely will it be for you to use the Meadows Slough / Upper Snodgrass Slough Anchorage area for your boating activities?
- A. It is somewhat likely that I will use the area.
- B. It is very likely that I will use the area.
- C. It is somewhat unlikely that I will use the area.
- D. It is very unlikely that I will use the area.
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Would it be ok if I get your contact information in case I need to contact you to do a follow up survey if there are changes to the proposed project later?
Prefer not to give contact info: or
Name:
Address:
Phone:
Email: